Exhibit B

Nationwide Permit Program: Unknown Adverse Impacts on the Commonwealth of the Northern Mariana Islands' Wetlands

ERIC L. GILMAN

Office of the Governor
Commonwealth of the Northern Mariana Islands

Of the 39 Nationwide Permits (NWPs) that came into effect on 11 February 1997, 11 authorize activities that could impact Commonwealth of the Northern Mariana Islands (CNMI) wetlands. Because managers of CNMI wetlands lack an accurate scientific basis for determining the significance of proposed wetland impacts, the CNMI denied and conditioned Clean Water Act Section 401 Water Quality Certifications and Coastal Zone Management Act Section 307 consistency concurrences for these 11 NWPs to reduce the likelihood of the U.S. Army Corps of Engineers (Corps) authorizing more than minimal adverse wetland impacts under the NWP program. The CNMI decided that the benefits of requiring a more stringent review process outweigh the costs of increasing the regulatory burden on developers. A review of authorized CNMI wetland impacts indicates that the loss of wetland quantity under the NWP program on Saipan is minimal. However, managers do not know if the site specific and cumulative loss of wetland quality—wetland functional performance and provision of valued services—is significant. The Corps authorized 7 projects under NWPs that impacted CNMI wetlands. These 7 projects impacted 10 of Saipan's 37 freshwater wetlands and filled approximately 3.6 hectares or 1.5% of the island's total freshwater wetland area. Seven of these 10 affected sites were isolated wetlands. Nationwide, the Corps does not know if the cumulative loss of wetland area, functions, and values authorized under the NWP program has been minimal because the Corps has incomplete data on wetland impacts. Also, because most regions of the United States lack standardized assessment methods that estimate changes in functional performance and provision of valued services by local wetland classes, because many regions do not have the ability to define thresholds for cumulative wetland impacts, and because even small, isolated, and temporary wetlands may possess valued functions, the Corps does not know if wetland impacts authorized under the NWP program have been minimal. The Corps lacks an accurate basis for defining what constitutes a more than minimal adverse wetland impact to implement the NWP Program. Regulators assume that conserving wetland area prevents a net loss of functional performance and the provision of valued wetland services, but they have no means to confirm the accuracy of this assumption. Conditioning and denying the use of NWPs that could be used to authorize wetland impacts creates a more stringent review process but still results in the continued authorization of unknown wetland impacts under provisional NWPs and Individual Permits. A proposed solution is to develop regional wetland assessment methods for each wetland class to allow for the management of the project-specific and

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James Branch, EPA; Kathleen Dadey and Francis Dayton, Corps of Engineers; Karen Evans and Ann Marshall, USFWS; Martin Zeleznik, CNMI Division of Environmental Quality; and George Baldwin, CNMI Coastal Resources Management Office, provided valuable insights. Peer reviewers supplied knowledgeable comments.

Address correspondences to Eric Gilman, U.S. Fish and Wildlife Service, PPP 171 Box 10000, Saipan, MP 96950-9504, USA. E-mail: eric.gilman@saipan.com

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cumulative effects of wetland degradation on wetlands functional performance and provision of valued services. This provides wetland managers with the requisite information to condition relevant NWPs to ensure that no more than minimal adverse wetland impacts are authorized in their region.

Keywords Commonwealth of the Northern Mariana Islands, cumulative impacts, functions, Nationwide Permit, regional planning, values, wetlands

The Nationwide Permit (NWP) program exists to allow the U.S. Army Corps of Engineers (Corps) to prioritize its workload associated with administering the Clean Water Act and Rivers and Harbors Act regulatory programs and to focus on reviewing proposed projects with the greatest potential for significant adverse impacts. The NWP program is flexible in allowing states to condition or deny NWPs that may result in more than minimal adverse environmental impacts in their region. NWPs are issued for 5-year periods, and thereafter the Corps must renew them.

On 17 June 1996 the Corps published a Public Notice in the *Federal Register* announcing its intent to issue, reissue, and modify NWPs (U.S. Army Corps of Engineers, 1996). This Public Notice served as an application for Clean Water Act Section 401 Water Quality Certifications and Coastal Zone Management Act Section 307 consistency determinations from all states, tribes, and U.S. insular areas subject to federal environmental laws. U.S. insular areas subject to the Clean Water Act and Rivers and Harbors Act include U.S. commonwealths (the Northern Mariana Islands and Puerto Rico) and U.S. territories (Virgin Islands, American Samoa, and Guam). Hereafter, this article uses "state" to signify all U.S. states, tribes, U.S. commonwealths, and U.S. territories.

On 21 January 1997, 36 of the 37 existing NWPs expired. On 13 December 1996, the Corps published a Final Notice in the *Federal Register* to reissue all of the existing 37 NWPs, to modify several existing NWPs and NWP conditions, and to issue 2 new NWPs (U.S. Army Corps of Engineers, 1996b). The NWPs went into effect on 11 February 1997. Thus, all states must have responded to the Corps application for approval of the NWPs before 11 February 1997 in order for NWPs to be applicable in those states. On 12 December 1998, NWP 26 expires because the Corps determined that this NWP causes significant adverse wetland impacts (U.S. Army Corps of Engineers, 1996b). The Corps will replace NWP 26 with 16 new activity-specific NWPs (Anonymous, 1998; U.S. Army Corps of Engineers, 1996b).[1] The activity-based replacements will apply to all nontidal wetlands. NWP 26 currently only applies to isolated and headwater wetlands.

The Commonwealth of the Northern Mariana Islands (CNMI) Office of the Governor, Division of Environmental Quality, and Coastal Resources Management Office, in consultation with the Corps, U.S. Environmental Protection Agency (EPA), and U.S. Fish and Wildlife Service, analyzed the NWP program to determine its potential impacts

[1]The Corps published a Notice in the *Federal Register* on July 1, 1998 (FR 63: 36039-36078), requesting comments on the proposal to issue 6 new activity-specific NWPs, modify 6 existing NWPs, to become effective when NWP 26 expires on March 28, 1999, to add one new NWP condition, to modify 6 existing NWP conditions, and to make the interim modification to NWP 29 permanent. The CNMI Division of Environmental Quality and Coastal Resources Management Office denied section 401 Water Quality Certifications and Coastal Program consistency concurrence for the 6 NWPs proposed to replace NWP 26 and conditioned proposed relevant modified NWPs so that they cannot be used to authorize wetland impacts. These CNMI agencies justified their decisions based on the same concerns raised in response to the Corps' 1996 changes to the NWP program.

on CNMI wetlands. This analysis enabled the CNMI to decide whether to approve, regionally condition, or deny specific NWPs.

This article describes the CNMI analysis of authorized wetland impacts in the CNMI to support the thesis that wetland regulators do not know if the implementation of the NWP Program in the CNMI is causing more than minimal adverse impacts on the performance of functions and provision of valued services on a site-specific or cumulative and landscape level. The article describes the CNMI wetland resources, describes the status of CNMI wetland managers' understanding of the functioning and provision of services by CNMI wetlands, documents the history of authorized CNMI wetland impacts, summarizes the distinctions between the Individual Permit and NWP review processes as they relate to the protection of wetlands, and explains how nationwide the Corps cannot assess the impacts on wetland quantity or quality from the NWP Program. This analysis supports the conclusion that the CNMI and other regions of the United States need to develop and use assessment methods that allow wetland managers to accurately and consistently predict changes in site-specific and regional wetland quality from proposed activities, define thresholds for acceptable site-specific and cumulative losses of wetland quality, define what constitutes a significant adverse wetland impact based on how the community values its wetland resources, and define suitable uses of wetlands based on the community's value-laden goals for their region's aquatic resources. The article presents an approach being implemented by the CNMI to develop a wetland assessment method and to account for the full suite of wetland functions and provision of valued services when making permitting decisions.

CNMI Wetland Resources

The 17 islands of the 750-km-long Mariana Island archipelago consist of the 16 islands of the CNMI, which lie to the north of the U.S. Territory of Guam, a separate political entity from the CNMI (Figure 1). While all of the Mariana Islands are of volcanic origin, five are now forested limestone plateaus, and two islands, Pagan and Agrihan, have active volcanoes. The CNMI climate is tropical marine with high humidity and uniform temperature throughout the year. The average temperature is 27°C with approximately 200 cm of rainfall and 81% humidity (Soil Conservation Service, 1989).

Saipan, Rota, and Tinian are the three developed islands of the CNMI, and of these, Saipan is the only one under major development. Saipan is the business, government, and tourist center of the CNMI, is home to 90% of the CNMI's total population of 59,913 (as of 1995) (Department of Commerce, 1996), and all Department of the Army permits to impact wetlands have been for projects on Saipan (Table 1). The 13 northern islands are remote and only two are inhabited. The CNMI became a Commonwealth of the United States in 1986, having previously being part of the Trust Territory of the Pacific Islands (U.S. Department of the Interior, 1996). The CNMI is subject to all U.S. environmental laws, including the Clean Water Act.

Rota, Tinian, Saipan, and Pagan contain the only freshwater wetlands in the CNMI, and over 85% of these 336 hectares (ha) of wetlands are on Saipan, comprising 2% of Saipan's 119-km^2 landmass (Gilman et al., 1997). Saipan has 239 ha of palustrine wetlands and 16 ha of lacustrine wetlands (Coastal Resources Management Office, 1991). Most of these depressional freshwater wetlands are classified as palustrine emergent persistent systems under the Cowardin system, and are dominated by *Phragmites karka* (Retz.) Trin. ex Steud, an obligate wetland reed species (Gilman et al., 1997). The slightly brackish 16-ha Lake Susupe and the 142 ha of contiguous palustrine emergent and for-

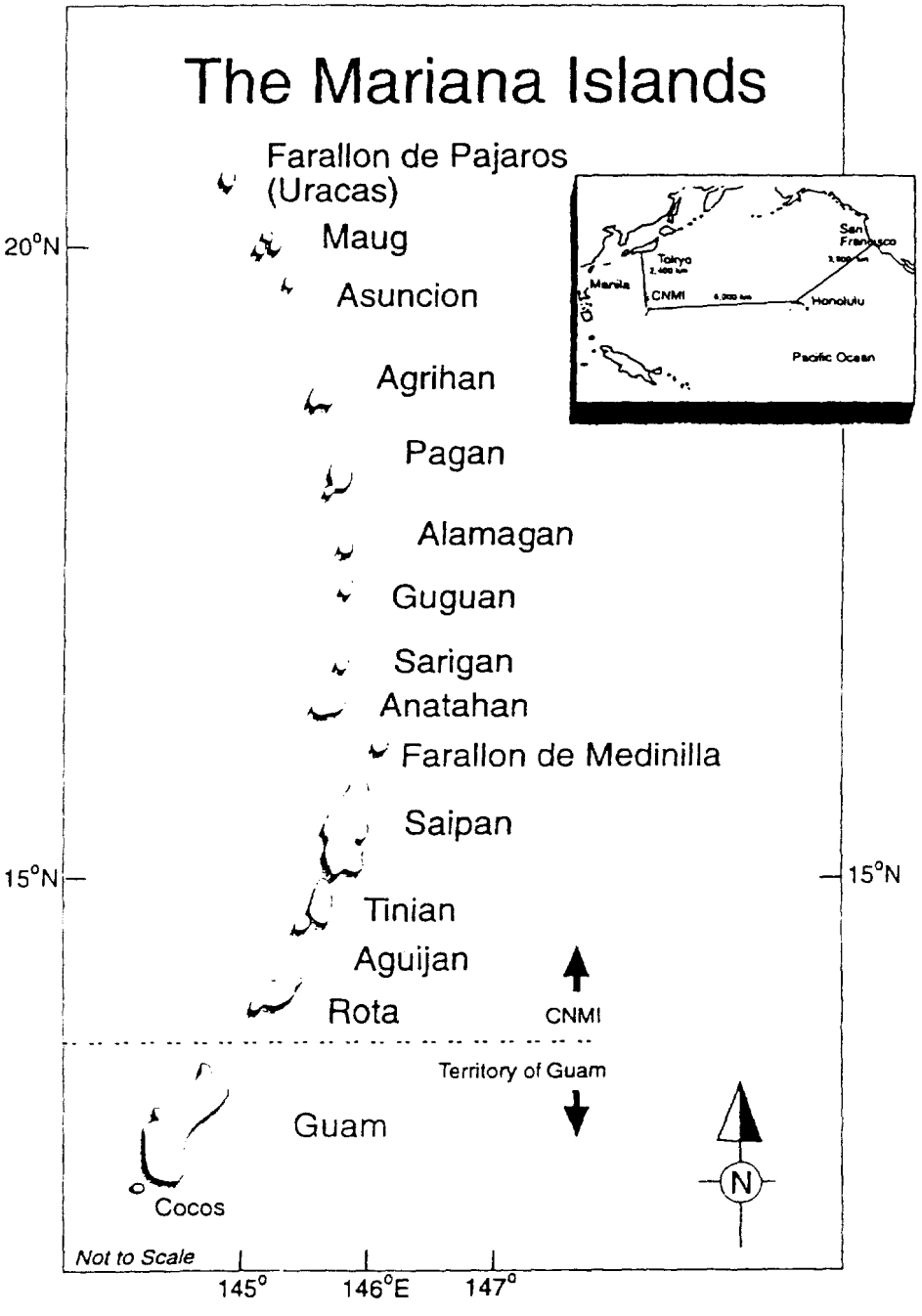

Figure 1. Location of the Commonwealth of the Northern Mariana Islands.

ested freshwater wetlands surrounding the lake, located on the southwestern coastal plane of Saipan, comprise 60% of Saipan's inland wetlands (Coastal Resources Management Office, 1991). In addition to these inland wetlands, the CNMI's estuarine wetlands include three small stands of the mangrove *Bruguiera gymnorhyza* (L.) Lam., totaling less than 1 ha, and 405 ha of seagrass meadows [*Enhalus acoroides* (L.f.) Royle, *Halodule uninervis* (Forsk.) Aschers, and *Halophila minor* (Zoll.) den Hartog] in Saipan's lagoon (Coastal Resources Management Office, 1991, 1993).

Only 36% of Saipan's original wetland area remains (Coastal Resources Management Office, 1991). Most of these losses, which occurred during this century, are attributed

Table 1
Corps-authorized wetland impacts in the CNMI

Project name	Date applied for and received approval from the Corps	Mitigation plan required?	Length of approval time for mitigation plan	Activity and type of wetland authorized by the Corps to be impacted	Individual Permit or NWP
Chalan Monsignor Guerrero	Applied 3/31/95 Approved 9/5/95	Yes	23 weeks	Road widening; fill *P. karka* and *H tiliaceus* palustrine emergent and forested	NWP 26
Chalan Pale Arnold	Applied 4/25/94 Approved 11/28/94	Yes	5 weeks	Road widening; fill *P. karka* palustrine emergent	NWPs 14 and 26
Kagman	Applied 2/4/94 Approved 4/21/94	Yes	5 weeks	Agricultural flood control project; fill palustrine emergent	NWP 26
Power Center	Applied 11/8/94 Approved 3/3/95	Yes	28 weeks	Construct commercial buildings; fill *P. karka* and *H. tiliaceus,* palustrine emergent and forested	NWP 26
Fina Sisu	Applied 11/23/91 Approved 10/2/92	No	7 weeks	Road construction; fill *P. karka* palustrine emergent	Individual Permit
Falig	Applied 5/6/92 Approved 6/25/93	No	28 weeks	Construct private home; fill *H. tiliaceus* palustrine forested	NWP 26
Guerrero	Applied 1/20/96 Approved 4/29/96	Yes	7 weeks	Construct commercial building; fill *H. tiliaceus* palustrine forested	NWP 26
JG Sablan/PSS	Corps lacks documentation	No	Corps lacks documentation	Construct commercial and government buildings; fill *P. karka* palustrine emergent	NWP 26

(*Table continues on next page*)

Table 1
Corps-authorized wetland impacts in the CNMI (*Continued*)

Project name	Functions considered	Area of wetland impact (ha)	Area of compensatory wetland mitigation (ha) and type of mitigation	Mitigation on- or off-site	Mitigation in-kind or out-of-kind	Isolated wetland or part of large complex
Chalen Monsignor Guerrero	Reed-warbler and moorhen habitat	0.65	0.65 (created)	Off-site	Out-of-kind	Part of large complex
Chalan Pale Arnold	Reed-warbler and moorhen habitat	0.57	0.57 (created, 0.4 ha permanent lacustrine, 0.16 ha palustrine)	On-site (near road project)	0.16 ha in-kind, 0.4 ha out-of-kind	Part of large complex
Kagman	Moorhen habitat	0.18 (4 wetlands)	0.72 (2 wetlands) (enhanced 0.04 ha; created 0.68 ha)	On-site	In-kind	Isolated and part of large complex
Power Center	Moorhen habitat	0.88	0.88 (undocumented combination of created and enhanced)	On-site	Out-of-kind	Isolated
Fina Sisu	No performance standards	0.06	0.06 (created, failed)	On-site	Out-of-kind	Isolated
Falig	Moorhen habitat	0.90	0.43 (created, mostly lacustrine permanent)	On-site	Mostly out-of-kind	Isolated
Guerrero	Moorhen habitat	0.31	0.31 (created lacustrine wetland; no emergent vegetation)	On-site	Out-of-kind	Isolated
JG Sablan/ PSS	Moorhen habitat	Corps lacks documentation	Corps lacks documentation	On-site	Out-of-kind	Part of large complex

Note. F. Dayton, U.S. Army Corps of Engineers, personal communication, 1997; CNMI Coastal Resources Management Office permit files, 1997.

to the 30-year period (1914–1944) of Japanese occupation when much of the land was cleared for cultivation, and to recent wetland filling for military purposes (Coastal Resources Management Office, 1991). No data exist on historic losses of wetlands resulting from human activities on Tinian, Rota, and the Northern Islands (Coastal Resources Management Office, 1993). Data on recent changes in the CNMI's wetland resources come from Corps and CNMI Coastal Resources Management Office permit files (Table 1).

Saipan's and Tinian's inland wetlands serve important habitat functions for the U.S. listed endangered Mariana common moorhen, *Gallinula chloropus guami,* which lives only in wetlands and is endemic to the freshwater wetlands of Saipan, Guam, and Tinian; the moorhen has also been found in created wastewater treatment ponds on a Rota golf course (Stinson et al., 1991; U.S. Fish and Wildlife Service, 1991; U.S. Fish and Wildlife Service and CNMI Division of Fish and Wildlife, 1996). The moorhen requires freshwater lacustrine wetlands and palustrine herbaceous emergent wetlands with open water inclusions for foraging and nesting habitat.

The nightingale reed-warbler, *Acrocephalus luscinia,* another U.S. listed endangered species, lives in both upland and wetland habitats. The species was historically found on six islands of the Marianas archipelago, but it is now found only on Saipan, Aguiguan, and Alamagan (Reichel et al., 1992; U.S. Fish and Wildlife Service, 1997). Reed-warblers are common on Saipan and are found in and along fringes of stands of the upland tree species tangantangan, *Leucaena leucocephala* (Lam.) de Wit, in mixed tangantangan and elephant grass, *Pennisetum purpureum* Schumach., at the edges of lacustrine wetlands where native pago, *Hibiscus tiliaceus* L., is found, and in *Phragmites*-dominated wetlands (Craig, 1992; Reichel et al., 1992). The U.S. Biological Resources Division's Pacific Islands Ecosystems Research Center initiated a study of the fundamental ecology of the nightingale reed-warbler in February 1997. The project will provide requisite information to develop a habitat suitability model for the reed-warbler based on vegetation structure, composition, and other site variables (S. Fancy & S. Mosher, Biological Resources Division, U.S. Geological Survey, personal communication, 1997).

Corps Authorized Impacts of CNMI Wetlands

Table 1 identifies all of the projects in the CNMI authorized by the Corps that impacted wetlands. Regulators are basing permitting decisions, mitigation requirements, and performance standards for CNMI freshwater wetlands only on impacts to habitat for the moorhen and nightingale reed-warbler. When making a permitting decision, the Corps Guam Operations Office bases its review on concerns of harming habitat submitted by the U.S. Fish and Wildlife Service in a Section 7 Biological Opinion or as comments on a proposed mitigation plan, and occasionally from the CNMI Division of Fish and Wildlife, as no other agencies or organizations typically submit comments on proposed projects that will impact freshwater wetlands (F. Dayton, U.S. Army Corps of Engineers, personal communication, 1996; Gilman, 1997). Impacts on the performance of habitat functions by the wetlands being proposed to be impacted are not estimated through the use of an accurate or consistent assessment method to determine mitigation requirements (K. Evans, U.S. Fish and Wildlife Service, personal communication, 1996; Gilman, 1997). Also, regulators do not consider impacts to the full suite of wetland functions when reviewing permit applications or developing mitigation requirements because they have no information available on the performance of functions other than habitat or the ability to predict changes in the performance of these functions (G. Baldwin, CNMI Coastal Resources Management Office, personal communication, 1996; F. Dayton, U.S. Army Corps

of Engineer, personal communication, 1996; Gilman, 1997; M. Zeleznik, CNMI Division of Environmental Quality, personal communication, 1996).

Table 1 indicates that the Corps authorized seven projects under an NWP to impact wetlands, all of which were on Saipan. These seven projects resulted in the filling of approximately 3.6 ha of palustrine emergent wetlands or 1.5% of Saipan's total freshwater wetland area, and impacted 10 of Saipan's 37 freshwater wetlands (Gilman et al., 1997; U.S. Fish and Wildlife Service and CNMI Division of Fish and Wildlife, 1996). Seven of these 10 impacted wetlands were isolated, small wetlands, less than 1 ha and only 1 of the 10 wetlands was part of the large Susupe wetland complex that comprises over 60% of Saipan's freshwater wetland area. Available information allows for an estimate of the area and class of lost and converted wetlands. No information is available on the significance of project-specific or cumulative losses of wetland functions and values.

Wetland Protection Under the Individual Permit and NWP Programs

If the Corps had required these seven projects to go through the Individual Permit review process instead of the NWP program review process, would this have afforded a significantly higher level of wetland protection?

Before the Corps can issue a Department of the Army Clean Water Act Section 404 or Rivers and Harbors Act Section 10 permit, the project must first be awarded two state approvals, if required (Strand, 1997). Pursuant to the federal Coastal Zone Management Act, the Corps needs to obtain certification or a waiver from the federally approved coastal zone management program indicating that the proposed federal action (issuance of the permit) is consistent with the state coastal zone management plan. Also, pursuant to Section 401 of the Clean Water Act, the applicant must obtain a state Section 401 Water Quality Certification or waiver indicating that the proposed project will not violate state water quality standards. Pursuant to an agreement between the CNMI government and the EPA, the CNMI Division of Environmental Quality oversees EPA regulations that address water quality, including the administration of the Clean Water Act Section 401 Water Quality Certification program. The CNMI Coastal Resources Management Office is an approved Coastal Zone Program pursuant to the U.S. Coastal Zone Management Act.

Certain categories of activities can be authorized under a General Permit instead of requiring a Department of the Army Section 10 or Section 404 Individual Permit. A General Permit is a Department of the Army authorization issued on a nationwide or regional basis for a category of activities that are similar in nature, and may be issued to avoid duplication of regulatory control. General Permits are not to be issued if they will cause greater than minimal adverse environmental impacts individually or cumulatively (33 CFR Part 323.2). NWPs, Programmatic General Permits, and Regional General Permits are the three types of General Permits that can be issued by the Corps for discharges of dredged and fill material in water of the United States, including wetlands. NWPs include categories of activities that are supposed to result in such minimal environmental impacts nationwide that they do not warrant the full review conducted for Individual Permit applications. Table 2 contains a list of the 39 NWPs that went into effect on 11 February 1997.

Before issuing a new NWP, the Corps conducts a review to ensure that the NWP will not result in more than minimal adverse impacts. If the state issues a Section 401 Water Quality Certification and consistency concurrence for a NWP, and the NWP in

Table 2
Nationwide permits authorized and reauthorized on 11 February 1997

NWP number	Title
1	Aids to Navigation
2	Structures in Artificial Canals
3	Maintenance
4	Fish and Wildlife Harvesting, Enhancement, and Attraction Devices and Activities
5[a,b]	Scientific Measurement Devices
6[a]	Survey Activities
7	Outfall Structures
8	Oil and Gas Structures
9	Structures in Fleeting and Anchorage Areas
10	Mooring Buoys
11	Temporary Recreational Structures
12[a,b]	Utility Line Discharges
13	Bank Stabilization
14[a,b]	Road Crossing
15	U.S. Coast Guard Approved Bridges
16	Return Water From Upland Contained Disposal Areas
17	Hydropower Projects
18[a,b]	Minor Discharges
19	Minor Dredging
20	Oil Spill Cleanup
21[a,b]	Surface Coal Mining Activities
22	Removal of Vessels
23[a]	Approved Categorical Exclusions
24	State Administered Section 404 Programs
25	Structural Discharge
26[a,b,d]	Headwaters and Isolated Waters Discharges
27	Wetland and Riparian Restoration and Creation Activities
28	Modifications of Existing Marinas
29[a,b]	Single-Family Housing
30[c]	Moist Soil Management for Wildlife
31[c]	Maintenance of Existing Flood Control Projects
32	Completed Enforcement Actions
33	Temporary Construction, Access and Dewatering
34	Cranberry Production Activities
35	Maintenance Dredging of Existing Basins
36	Boat Ramps
37	Emergency Watershed Protection and Rehabilitation
38[a,b]	Cleanup of Hazardous and Toxic Waste
39	Reserved
40[a]	Farm Buildings

[a]The Corps could use these 11 NWPs to authorize wetland impacts.

[b]If authorizing wetland impacts, these 8 NWPs require the Corps to notify certain agencies.

[c]Two new NWPs that came into effect on 11 February 1997.

[d]On 12 December 1998, NWP 26 expires nationwide due to the Corps determination that this NWP is causing significant adverse wetland impacts. The Corps intends to replace NWP 26 with 16 new activity-specific NWPs (Anonymous, 1998; U.S. Army Corps of Engineers, 1996b).

question does not require notification, applicants have authorization from the Corps to conduct activities that fall under this NWP. Also, the Corps does not have to prepare a Statement of Finding document to authorize a project pursuant to a NWP as it does for Individual Permit authorizations.

States can require conditions for specific NWPs. For instance, a state could condition NWP 40, Farm Buildings, by lowering the stated threshold that authorizes the filling of up to 1 acre (0.405 ha) of wetland, to only apply to specified classes of wetlands, to not apply to wetlands in a specified watershed, or any other condition that the state's wetland managers deem are required to prevent more than minimal adverse wetland impacts. Also, the Corps can add case-specific conditions for a project that they authorize under an NWP (U.S. Army Corps of Engineers, 1996).

The sequencing requirement for Individual Permits for off-site avoidance pursuant to the Section 404(b)(1) Guidelines does not apply to General Permits (U.S. Army Corps of Engineers, 1996b). For the Corps sequencing analysis of proposed activities authorized by approved NWPs, avoiding impacts is limited to a consideration of on-site alternatives, that is, at the project site (Peck, 1996; U.S. Army Corps of Engineers, 1996). The NEPA alternatives analysis requirement for Individual Permits also does not apply to General Permits. This is a significant difference from the Individual Permit review process, where the alternatives and sequencing analyses expressly consider the practicability of off-site alternatives to the proposed action.

Violations of the Endangered Species Act are more likely to occur for projects authorized under NWPs that do not require notification than for projects that do require notification. When the Corps receives a Pre-Construction Notification, the Corps determines if the proposed project will adversely affect a federally listed species to determine if there is a need to request formal Endangered Species Act Section 7 consultation. The Endangered Species Act Section 7 consultation process is the same for Individual Permits and NWPs that require notification. For activities authorized under NWPs that do not require notification, the Corps does not make project-specific determinations of whether the activity potentially violates the Endangered Species Act, because the Corps made a general determination that the NWP would not violate the Endangered Species Act at the time the NWP was authorized. As of 13 December 1996, the Corps initiated a formal programmatic Section 7 consultation with the Services ("Service" means either the U.S. Fish and Wildlife Service or the National Marine Fisheries Service, depending under which service's purview a proposed project falls) concerning the procedures to administer the NWP program (U.S. Army Corps of Engineers, 1996b). General Condition 11 of the NWPs states that no activity can be authorized under the NWP program that will jeopardize or adversely modify designated critical habitat of a federally listed endangered species. But for individual projects authorized under a NWP that do not require the applicant to notify the Corps, the applicant is presumed to be knowledgeable of the prohibitions of the Endangered Species Act and the presence of listed species on their proposed project site, and the applicant is responsible for ensuring that the activity will not violate the Endangered Species Act (U.S. Army Corps of Engineers, 1996b).

Several of the NWPs require the applicant to submit a Pre-Construction Notification before beginning the activity. Of the 11 NWPs that can authorize wetland impacts (Table 2), 8 require a Pre-Construction Notification if wetlands are impacted, under certain circumstances (Table 3). NWPs 6, 23, and 40 can authorize wetland impacts but do not require a Pre-Construction Notification. The relevant natural resource agencies have an opportunity to provide the Corps with comments on activities proposed for authorization under the NWPs under the circumstances identified in Table 3. For CNMI wetland

Table 3
Nationwide permits that can authorize wetland impacts that require pre-construction notification under certain circumstances

NWP number	When is notification required?
5	For discharges between 10 and 25 cubic yards, but only the Corps reviews the Pre-Construction Notification (PCN) unless the U.S. EPA or Service formally requests to receive the PCN for this NWP.
12	If the project involves mechanized land clearing of a forested wetland, or other specific circumstances, but only the Corps reviews the PCN unless the U.S. EPA or Service formally requests to receive the PCN for this NWP.
14	For any wetland fills.
18	If the activity involves discharging more than 10 cubic yards into a wetland, but only the Corps reviews the PCN unless the U.S. EPA or Service formally requests to receive the PCN for this NWP.
21	All projects require the submission of a PCN.
26	For impacts between 1 and 3 acres, a PCN is distributed to select natural resource agencies. Corps-only notification is required for wetland impacts between one-third and 1 acre. For a fill of less than one-third acre, the applicant must notify only the Corps within 30 days of completion of the activity to assist the Corps with monitoring the impacts of this NWP.[a]
29	All projects require the submission of a PCN.
38	All projects require the submission of a PCN.

Note. From U.S. Army Corps of Engineers (1996b).
[a]If the state denies Clean Water Act Section 401 Water Quality Certification for NWP 26 for activities with less than one acre of wetland impact, the U.S. EPA can request copies of PCNs for impacts between one-third and 1 acre.

impacts that fall under an NWP, the Corps Guam Operations Office distributes Pre-Construction Notifications to seven agencies: the U.S. Fish and Wildlife Service, U.S. EPA, U.S. National Marine Fisheries Service, CNMI Division of Fish and Wildlife, CNMI Division of Environmental Quality, CNMI Historic Preservation Office, and CNMI Coastal Resources Management Office (F. Dayton, U.S. Army Corps of Engineers, personal communication, 1996). The 1996 modifications to the notification requirement for NWPs 5, 12, and 18 may further limit the distribution of the Pre-Construction Notifications if state and federal agencies do not request the notification (Table 4) (U.S. Army Corps of Engineers, 1996b). This difference in notification requirements between the review processes of the NWP and Individual Permit programs can be significant.

The Corps has issued guidance concerning how denials of Section 401 Water Quality Certifications and coastal program consistency concurrences affect the Corps ability to

Table 4
Differences between the review processes for the Department of the Army Nationwide Permit Program and Section 10/404 Individual Permit Program for a proposed activity that impacts a wetland

Review activity	Nationwide Permit review process	Individual Permit review process
Does the Corps distribute a Notice?	Of the 11 NWPs that authorize activities that can impact wetlands, 8 require a Pre-Construction Notice if thresholds for wetland area impacted or discharged volume are exceeded.	Yes, the Corps distributes a Public Notice announcing its proposal to issue the Individual Permit.
For NWPs requiring notification, who receives the notice?	Only select state and federal agencies. For only 5 of the 8 NWPs that allow negative wetland impacts that require notification is the notice automatically distributed to key state and federal agencies.	Every agency and organization on the Corps mailing list
Time allotted to comment on the notice	Five calendar days to notify the Corps of intent to submit comments. It contacted, the Corps allows 10 additional calendar days (16 for NWP 26) to accept comments.	15 to 30 calendar days
Does the Corps produce a document to explain how it made its permit decision?	Not for a single project being authorized under a NWP.	Yes, the Corps must produce a Record of Decision (for NEPA documents) or Statement of Finding.
Can comments be submitted to the Corps concerning a proposed project? Does the applicant need state approval before the Corps can authorize the activity?	If the state approved the NWP under which the proposed activity falls, then the Corps can authorize projects under the NWP without additional state approval. If the state did not issue a Section 401 Water Quality Certification or coastal consistency determination for the NWP in question, then the applicant must first obtain these state approvals before the Corps can authorize the project under this NWP. If the proposed activity falls under a state-approved NWP that does not require a Pre-Construction Notice, then there is no opportunity for commenting on specific projects. If the NWP does require a Pre-Construction Notice, the Corps	Any individual or organization can comment on Public Notices. The Corps maintains a distribution list for Public Notices and anyone can add their name to this list. Local agencies can deny a Section 401 Water Quality Certification or coastal consistency concurrence for the proposed activity which will prevent the Corps from issuing the permit.

Table 4
Differences between the review processes for the Department of the Army Nationwide Permit Program and Section 10/404 Individual Permit Program for a proposed activity that impacts a wetland (*Continued*)

Review activity	Nationwide Permit review process	Individual Permit review process
	will solicit comments from certain agencies.	The U.S. EPA can veto the Corps' decision to issue a permit. If the activity may affect an endangered species, the Corps must conduct Section 7 Consultation with the Service.
Is a NEPA alternatives analysis required? What is the scope of the analysis for avoidance?	An alternatives analysis is not required. Avoidance of impacts is limited to a consideration of *on-site* alternatives.	An alternatives analysis is required to determine if there is a practicable alternative to the proposed activity regionally, nationwide, or globally. Avoidance of adverse impacts considers both on- and off-site alternatives.
Significance of adverse environmental impacts from a proposed activity requesting permission under the program	If an activity falls under an approved NWP, this creates the presumption that the activity does not result in more than minimal adverse environmental impacts individually or cumulatively.	An activity that requires an Individual Permit may result in significant adverse impacts, and the impact may need to be avoided, minimized, or compensated to receive approval.

authorize activities pursuant to a NWP (U.S. Army Corps of Engineers, 1992). This Guidance states that "if an applicant obtains an individual 401 water quality certification and/or CZM concurrence for work within the limits of an NWP where the State had denied certification and/or CZM concurrence, then the activity could be authorized by the NWP" (U.S. Army Corps of Engineers, 1992, 30993). If a state denies a Section 401 Water Quality Certification and consistency concurrence for a NWP because it believes the category of activities in question poses more than minimal adverse environmental impacts, the Corps can authorize these activities under a "provisional" NWP anyway, but the applicant would

need to first acquire a Section 401 Water Quality Certification and consistency determination before the provisional authorization from the Corps is effective.

There is a general misconception that the NWP program greatly facilitates wetland degradation due to a nonexistent or lenient review process (Anonymous, 1996a, 1996b; Peck, 1996; Yocom et al., 1996). For instance, the National Wildlife Federation claimed that NWP 29 "eliminates most of the environmental safeguards normally afforded by Section 404 of the Clean Water Act" (Anonymous, 1996b). However, for activities authorized by a NWP that require a Pre-Construction Notification, such as NWP 29, a local coastal program permit may be required, regulators may require mitigation for authorized wetland impacts, the Service and relevant local agencies may get involved if federally listed species will be adversely affected, and states can require a Clean Water Act Section 401 Water Quality Certification and Coastal Program Consistency Concurrence for specified NWPs. Table 4 summarizes the differences between the level of wetlands protection afforded by the Individual Permit and NWP programs.

States can condition and deny the use of NWPs that could be used to authorize wetland impacts in order to require the Corps to employ a more stringent review process, but this still results in the continuation of the authorization of unknown wetland impacts under provisional NWPs and Individual Permits.

CNMIs Response to the Corps Application for Clean Water Act Section 401 Water Quality Certifications and Coastal Program Consistency Determinations for NWPs That Could Authorize Wetland Impacts

Of the NWPs that authorize activities that could result in wetland impacts (Table 2), the CNMI denied Section 401 Water Quality Certifications and coastal program consistency concurrence for NWPs 26, 29, and 40, which create thresholds below which negative wetland impacts are supposed to be minimal for an individual project or from cumulative impacts. The CNMI also conditioned NWPs 5, 6,12, 14, 18, 23, and 38 so that they cannot be used to authorize projects that impact wetlands. The CNMI did not condition NWP 21 because there are no coal deposits in the geologically young Mariana Islands.

Of the four new NWPs that the Corps was considering issuing, as described in the Corps 1996 Notice, the Corps decided not to adopt NWP B (U.S. Army Corps of Engineers, 1996a, 1996b). Because the final regulations implementing the 1996 Amendments to the Food Security Act of 1985 did not come out until after the close of the comment period for the proposed NWPs, the Corps decided to wait to make their decision whether or not to issue NWP B, Food Security Act Minimal Effect Exemptions, which could be used to authorize activities that impact wetlands. The Corps intends to repropose NWP B in the future (U.S. Army Corps of Engineers, 1996b). When the Corps does repropose NWP B, the CNMI will likewise condition this NWP so that it cannot be used to authorize projects that impact wetlands.

The CNMI's requirement of a more stringent review process is justified because:

- Wetland managers cannot predict the significance of proposed wetland impacts;
- Sixty-four percent of Saipan's wetlands have been lost and only two percent of the landscape is now wetlands. The CNMI wants developers to consider off-site development sites to avoid wetland impacts (Table 4). The CNMI wants to provide developers with a stronger incentive to avoid wetlands because wetlands are scarce and valuable;

- Most CNMI nontidal wetlands, including those that are small and seasonal, provide habitat to CNMI and federally listed endangered birds and may provide irreplaceable site-specific services. There is no threshold below which all wetland impacts, taken individually or cumulatively, are minimal in the CNMI;
- There is a history of weak law enforcement actions taken against violators of laws that protect wetlands; weak implementation of the sequencing process, alternatives analysis, and public interest review; and weak monitoring and enforcement of compensatory wetland mitigation projects. Given this history, it is not in the public's best interest for CNMI agencies to relinquish their oversight and reduce opportunities for public input on proposed projects that impact wetlands; and
- There are very few activities authorized annually that impact wetlands (Table 1). The NWP program is not needed in the CNMI to help the Corps address an increasing workload.

Rationale for the CNMI's Response

The Corps has the authority to issue General Permits for categories of activities that will result in no more than minimal adverse impacts on the environment either individually or cumulatively (33 CFR Part 323.2). Regulators and managers of CNMI wetlands do not have the capability to determine if a proposed project that would impact a wetland will result in a minimal or significant loss of functions and values (Gilman, 1997). Thus, the CNMI conditioned and denied relevant NWPs so that all activities that degrade CNMI wetlands, irrespective of the wetland's size, require a Clean Water Act Section 401 Water Quality Certification and coastal program consistency determination. The CNMI government perceives that requiring applicants to comply with the more extensive review process is not a significant burden and is warranted because of the lack of wetland assessment capability and the lack of information on how valuable specific wetlands and their performance of functions are to the community. The more extensive review process will not create an unreasonable or significantly larger burden on developers. By denying and conditioning the NWPs as described, the CNMI is requiring the Corps to have CNMI agencies approve projects that impact wetlands before the Corps can authorize them under a NWP. The CNMI hopes that having a larger number of wetland scientists and managers use their best professional judgment to estimate the significance of the impacts to a wetland's valued functions on a case-by-case basis will decrease the likelihood of significant impacts being authorized under the NWP program, and that this more time-consuming and expensive review process will provide developers with an additional incentive to avoid impacting Saipan's wetlands, which comprise 2% of Saipan's landmass (G. Baldwin, CNMI Coastal Resources Management Office, personal communication, 1997; M. Zeleznik, CNMI Division of Environmental Quality, personal communication, 1997).

Scientists and regulators are currently without an accurate scientific basis for predicting impacts to a wetland's full suite of functions, including habitat functions. Regulators lack a quantitative basis to determine if a proposed project will jeopardize the continued existence or preclude the recovery of the moorhen and nightingale reed-warbler and create a more than minimal adverse impact to wetland habitat functions (Gilman, 1997). CNMI agencies decided to require a more rigorous wetlands permitting process, in part, to maximize the protection of endangered birds.

By denying and conditioning NWPs that authorize wetland impacts, the CNMI will not make the wetland permit process unreasonably burdensome for applicants or the

Corps. To date, there have been only eight Corps authorizations of projects in the CNMI that permitted wetland impacts (Table 1). The Corps Guam Operations Office has sufficient resources to focus on the few applications for permits to impact CNMI wetlands. Furthermore, CNMI denial of coastal consistency determinations and Section 401 Water Quality Certifications for NWPs that permit impacts to wetlands will not lengthen the amount of time that developers must wait for project approval for most activities. In the CNMI, the bottleneck for projects proposing adverse impacts to wetlands is typically the time it takes to have a mitigation plan be accepted by relevant agencies, because most wetlands provide habitat for endangered species. Allowing the Corps to authorize projects under NWPs that negatively impact wetlands without requiring project-specific state approval would not have significantly streamlined the CNMI's wetland permit process (Table 4). However, developers will have to pay for Clean Water Act Section 401 Water Quality Certifications for all applications to impact CNMI wetlands, which can cost as much as $5,000. The CNMI deems the more rigorous wetland permitting process for the NWP program is justified because Saipan's wetlands comprise only 2% of the island's landmass and should be easily avoided by developers, and because regulators may be more likely to be able to define what constitutes minimal adverse wetland impacts through a case-by-case review.

Unknown Loss of Wetland Functional Performance Due to the NWP Program

The NWP program may be causing significant losses of wetlands' functional performance from cumulative authorized impacts nationwide. The Corps prepared preliminary Environmental Assessments for each NWP before reauthorizing the NWPs in 1996 (URL: http://wetland.usace.army.mil/FDDs/FDD-list.html). The Corps could not accurately assess the significance of cumulative impacts that have been authorized under the NWP program. The preliminary Environmental Assessments do not reference data on past impacts from the use of the NWP program. The Corps does not know the cumulative wetland impacts from the use of the NWP program because there has been no notification requirement for certain activities authorized under the NWP program that result in wetland degradation. The Corps preliminary Environmental Assessments do not estimate the total area, geographical locations, classifications, or functions of wetlands or waters that have been impacted by the NWP program (Peck, 1996). Nationwide, there is no accurate way to determine the significance of cumulative losses of wetland area, functions, and values authorized under NWPs.

Most regions of the United States lack standardized wetland assessment methods that are sensitive to changes in functions of local classes of wetlands (M. Davis, U.S. Army Corps of Engineers Waterways Experiment Station, personal communication, 1997; Gilman, 1997; Smith et al., 1995) and lack methods that account for site-specific and cumulative impacts to wetland values. This prevents wetland managers in these regions from accurately predicting if a wetland impact will result in a more than minimal loss of functions and values, regardless of how small an area of wetland is going to be degraded.

Furthermore, the assumption underlying the NWP Program that impacts to small areas of nontidal wetlands will result in no more than minimal adverse impacts to individual wetlands and from cumulative effects is not valid. Degrading small areas of wetland could result in more than minimal impacts because some small, isolated, and temporary wetlands perform valuable functions (Environmental Law Institute, 1993; Pacific Estuarine Research Laboratory, 1990; Robinson, 1995). Small wetlands can play a large

role in the population dynamics of some wetland animals. For instance, eliminating small, isolated wetlands can significantly decrease a region's average upland-to-wetland proximity, preventing a large portion of the landscape from being within the maximum migration distance (1000 m) of aquatic-breeding amphibians (Gibbs, 1993). Local populations of wetland-dependent fauna could face extirpation if a significant number of small and isolated wetlands are lost (Gibbs, 1993). Certain animals such as amphibians require small, seasonally flooded wetlands, which dry up and limit fish populations, but are inundated long enough for the amphibians to survive (Lewis, 1992). Also, many small and seasonally flooded wetlands provide habitat for waterfowl and shore birds, such as the U.S. listed Mariana common moorhen found in the CNMI (Stinson et al., 1991; U.S. Fish and Wildlife Service and CNMI Division of Fish and Wildlife, 1996; U.S. Fish and Wildlife Service, 1991). Most of the open-water wetlands on Saipan and Tinian are infested with nonnative tilapia, *Oreochromis mossambicus* (Peters), which feed on food resources similar to those of the moorhen and therefore probably compete with the moorhen for food (Stinson et al., 1991). The CNMI's seasonal wetlands with open water, which are typically small, isolated wetlands, usually lack standing water during the dry season. These seasonal wetlands tend not to support tilapia because the fish cannot survive the dry season, aiding the survival of the moorhen (K. Evan, U.S. Fish and Wildlife Service, personal communication, 1996). Also, wetlands are valued by society for site-specific reasons such as flood storage (Kusler, 1992). Ideally, if wetland managers had the technical ability and resources (staff and money), the NWP program would account for locally determined acceptable thresholds for what constitutes a minimal adverse wetland impact, which requires a standardized assessment method calibrated for local classes of wetlands, and an analysis of what services wetlands are providing. However, because the Corps has incomplete records on cumulative wetland impacts authorized under the NWP program, and because certain regions of the United States lack accurate wetland assessment methods and cannot manage the cumulative effects of wetland degradation, the NWP program could be authorizing more than minimal adverse impacts from a loss of the performance of functions and provision of valued services by wetlands.

Underlying Problem: Need for Tools to Manage Wetland Functioning and Provision of Valued Services

The NWP Program could be an appropriate tool for managing wetlands for the CNMI, and other regions that currently lack technically sound assessment methods, if wetland managers develop tools to provide information on how proposed impacts will alter wetland quality and will affect the ability of the community to continue to receive valued services from their region's wetlands.

There are no assessment methods calibrated to estimate change in functional performance by local classes of wetlands in many regions of the United States, including the CNMI (M. Davis, U.S. Army Corps of Engineers Waterways Experiment Station, personal communication, 1997). The CNMI also lacks a method to estimate the values associated with wetlands' functions. *Because regulators have no accurate scientific basis to estimate a wetland's functional performance or provision of valued services or to predict changes in functional performance and provision of values from proposed activities, they have no accurate basis for defining what constitutes a more than minimal adverse wetland impact to implement the NWP Program.* Regulators assume that conserving wetland area prevents a net loss of functional performance and the provision

of valued wetland services, but they have no means to confirm the accuracy of this assumption.

There are more than 40 rapid, quantitative and qualitative, wetland assessment techniques that measure or estimate wetland functions, some of which are designed for broad national application, and others of which are designed for specific regions and wetland classes (Haberstock, 1998; Kusler & Niering, 1998); examples include the Habitat Evaluation Procedure (U.S. Fish and Wildlife Service, 1980), Wetland Evaluation Technique (Adamus et al., 1987), WEThings (Whitlock et al., 1994), Hydrogeomorphic Approach (Smith et al., 1995), Model for Deciduous Palustrine Forested Wetlands in Maryland (Schroeder, 1996), Method for the Evaluation of Nontidal Wetlands in New Hampshire (Ammann & Stone, 1991), Method for the Evaluation of Inland Wetlands in Connecticut (Ammann et al., 1991), Washington State Wetland Function Assessment Project (Washington State Department of Ecology, 1996), and the Corps New England Division Highway Methodology (U.S. Army Corps of Engineers, 1995). There are also a few methods that assess a wetland's provision of valued services, such as the Corps New England Division Highway Methodology (U.S. Army Corps of Engineers, 1995), the U.S. EPA and Corps Advanced Identification Process or ADID (Clean Water Act Section 404(b)(1)), the Indicator Value Assessment (Hruby et al., 1995), and the Wetland Evaluation Technique, which considers the social significance of functions (Adamus et al., 1987).

Because wetlands are complex, dynamic systems, the assumptions made in developing and using assessment methods detract from the accuracy, ease of use, and cost-effectiveness of some methods (Kusler & Niering, 1998). Also, because there is a dearth of scientific information on some region's wetlands, assessment methods based on this limited information are not accurate, but the existence of the assessment method may imply to developers, legislators, and the public that scientists can accurately predict impacts to wetlands functions and values (Kusler & Niering, 1998). Despite these valid criticisms, it is better to use a standardized and consistent method based on the best available information than to continue to use an individual regulator's best professional judgment, which results in inconsistent and sometimes less accurate assessments.

CNMI's Approach: HGM and Adapted ADID

There is no assessment method calibrated to estimate change in functional performance by local classes of CNMI wetlands, and no method to describe the values provided by individual wetlands and cumulative values provided by the wetlands of a region. There is also a dearth of information on the fundamental structure and functioning of CNMI wetlands and appropriate best management practices for designing and maintaining compensatory mitigation projects (Gilman, 1998). CNMI wetland managers are often politically influenced to be lenient on developers when evaluating the adequacy of a developer's alternatives analysis and in making mitigation requirements. Because wetland managers have little information to justify conservative mitigation measures, CNMI regulators are frequently politically coerced to approve requests to impact wetlands with lenient mitigation measures (P. Barlas, Administrator, CNMI Coastal Resources Management Office, personal communication, 1998; J. Castro, Director, CNMI Division of Environmental Quality, personal communication, 1997).

In June 1997, a CNMI wetland assessment team began the process to develop a method to assess the functional performance of the CNMI's depressional wetlands (Gilman et al., 1997). The method is being modeled after the Corps Hydrogeomorphic Approach (Brinson, 1995, 1996; Davis et al., 1996, Smith et al., 1995). The wetland assessment

method will improve regulators' ability to prevent a net loss of wetland functional performance by accurately predicting changes in functional performance using models of disturbance, a surrogate for functional performance, calibrated for local wetland subclasses. The assessment method provides a numerical estimate of the functional capacity of a depressional wetland compared to reference standards, which are based on the suite of functions performed by the least disturbed wetlands in the CNMI landscape (Gilman et al., 1997; Smith et al., 1995).

A caveat the CNMI is making for the use of this assessment method for regulatory programs is that regulators will conduct an alternatives analysis and public interest review to decide whether a proposed activity should occur in a wetland rather than an upland or other aquatic site, or if the activity should occur at all, as a separate review process (Gilman et al., 1997). The CNMI assessment method will be used in the regulatory context to estimate the functional capacity of a wetland under pre- and postproject conditions; compare alternative action's wetland impacts; determine appropriate avoidance, minimization, and compensatory mitigation measures of a proposed wetland impact; provide a scientific basis for setting performance standards of mitigation wetlands; develop design, construction, maintenance, and monitoring practices for mitigation wetlands; and measure the success of mitigation projects (Gilman et al., 1997; Smith et al., 1995). This wetland assessment method will also provide managers of CNMI wetlands with an accurate and consistent tool to define thresholds above which a proposed wetland impact is deemed more than minimal and cannot be authorized under a NWP. While there may be a more appropriate wetland assessment method that fits the CNMI wetland regulatory needs and wetland resources, the Hydrogeomorphic Approach meets managers' goals.

The CNMI chose to implement the Hydrogeomorphic Approach not due to the results of an analysis of the numerous available assessment methods' consistency, degree of accuracy, ability to facilitate a rapid assessment, cost-effectiveness, type of output, or regional versus national application. Instead, the CNMI selected the Hydrogeomorphic Approach because a selection of a different method would not have provided requisite financial and technical assistance: (a) The U.S. EPA was more likely to award financial and technical assistance to develop a wetland assessment method if the CNMI proposed to implement the nationally approved Hydrogeomorphic Approach; (b) staff from the Corps' Waterways Experiment Station were willing to provide technical oversight of the process to develop the assessment method if the CNMI implemented HGM; and (c) the likelihood of federal agencies formally adopting the Operational Draft assessment method was perceived to be significantly higher if the CNMI employed the Hydrogeomorphic Approach due to the federal government's National Action Plan to Implement the Hydrogeomorphic Approach to Assessing Wetland Functions (*Federal Register* 20, June 1997, Vol. 62). CNMI regulatory agencies, in turn, are more likely to formally adopt the wetland assessment method if the federal agencies formally adopted the method for use in their wetland regulatory programs.

The Hydrogeomorphic Functional Assessment Method for the CNMI depressional wetlands will provide information to prevent a net loss of wetland functions (Gilman et al., 1997). However, managers of CNMI wetlands also lack a means to account for the loss of site-specific and cumulative wetland values when making permit decisions. After completing an operational draft of the CNMI wetland assessment method, CNMI wetland managers plan to conduct a locally coordinated, adapted advanced identification (ADID) process (Environmental Law Institute, 1993; Environmental Protection Agency, 1995; Gilman, 1997). The Clean Water Act Section 404(b)(1) includes a provision that

allows the U.S. EPA and the Corps, in consultation with local governments, to identify wetlands as suitable or unsuitable for the disposal of dredged material to provide predictability for the likely outcome of applications for Department of the Army Section 404 permits to fill these wetlands (Environmental Law Institute, 1993; U.S. Environmental Protection Agency, 1995). The CNMI's adapted ADID process will expand the scope of the formal ADID process by defining suitable uses for each wetland based on goals set for the overall regional, landscape functioning, and a threshold for acceptable regional losses of functions and values (Lee & Gosselink, 1988; Preston & Bedford, 1988). Impacts to the overall wetland functioning on a watershed or regional landscape level are caused by the accumulation of effects from the disturbance of individual wetlands. The CNMI's adapted ADID process will allow managers to account for cumulative effects and the community's values by providing managers with an understanding of the contribution of a particular wetland to the regions' functioning by knowing the wetland's functional capacity and position in the landscape. Managers will have to inventory the functional performance of the CNMI's wetlands to implement this adapted ADID process.

For instance, if the wetlands in Saipan's watershed that contains the island's central business district are measured to store a certain volume of water for various storm event scenarios (for a specified precipitation rate, antecedent moisture conditions, soil infiltration rate, and drainage basin size and storage capacity), managers could determine a minimum volume of surface water that these wetlands need to store to protect people's property. Managers would prevent the cumulative loss of the performance of surface water storage by this watershed's wetlands below the determined acceptable threshold.

This adapted ADID process is not to be mistaken for a categorization of wetlands, where all wetlands in a region are ranked from highest value to lowest value (U.S. Environmental Protection Agency, 1995; Gilman, 1997). The CNMI developed a Saipan wetlands management plan in 1991 that used available information on habitat values to categorize the island's inland wetlands (Coastal Resources Management Office, 1991). This plan only used information on the presence or absence of federally listed endangered species in Saipan wetlands to base its ranking. The plan did not account for a wetland's other functions or account for valued services provided by individual wetlands or cumulatively provided by the wetlands of a region. The adapted ADID process will not tell managers if one wetland is of higher or lower value than another wetland, because site-specific factors, such as surrounding land uses and the level of performance of functions by neighboring wetlands, determine how a wetland is valued (Kusler, 1992). Instead, the CNMI's adapted ADID process will proactively inform wetland managers and the private sector what constitutes acceptable versus unacceptable adverse wetland impacts based on predicted changes in a wetland's functional performance and the wetland's contribution to the region's functioning. Judgment is based, in part, on the importance to the local community of specific wetland's and region's functional performance. By proactively setting goals for the maintenance of a region's functioning and understanding an individual wetland's contribution toward this goal, managers can identify suitable uses for each wetland.

The results of the CNMI's adapted ADID process will provide information on the value of a specific wetland and its contribution to its watershed's performance of wetland functions. This allows regulators to compare the costs from a proposed project's impact on wetlands performance of functions to the benefits resulting from the proposed project. This technique will allow regulators to comprehensively conduct the public interest review process of the Clean Water Act Section 404 program (33 CFR Section

320.4 (a)(3)) to evaluate the potential impacts to wetland values, including who benefits from site-specific and regional wetland functions, how they benefit, and to consider the cumulative effects of lost wetland functional performance. Regulators will also have an indicator of a wetland's current and future values. The wetland's location in the current landscape, existing adjacent land uses and how these uses benefit from the functional performance of the wetland, the functional performance of other wetlands in the watershed (tells regulators what cumulative loss of wetland functions is acceptable), and predicted future land uses in the wetland's watershed allow for watershed planning to sustain the desired performance of valued wetland functions. This tool will enable the Corps and other regulators to be able to account for wetland values to define what constitutes more than minimal adverse impacts in order to implement the NWP program.

The Hydrogeomorphic Approach provides information to help prevent a net loss of wetland functioning. An adapted ADID process provides information to prevent a net loss of site-specific and regional wetland values (King & Herbert, 1997). The CNMI's adapted ADID process uses information on wetland functions gained from the Hydrogeomorphic Approach to determine: (1) how valuable the performance of functions by a specific wetland is to the community based on its location in the landscape; (2) how valuable the performance of wetland functions by a region is for the community; and (3) what regional level of performance of valued wetland functions is desired to be maintained. The latter two pieces of information allow regulators to proactively set goals for the maintenance of a region's wetland functions and values and understand an individual wetland's contribution toward this goal. This allows managers to identify suitable uses for each wetland, provide direction on where to site rehabilitation projects, and develop performance standards for rehabilitation projects that account for these regional goals.

Once the regional wetland assessment method and adapted ADID process are complete, managers of CNMI wetlands will be able to more accurately define what constitutes significant adverse wetland impacts on a site-specific and regional basis. Wetland managers will then be able to determine how to regionally condition NWPs that could authorize wetland impacts to ensure that no more than minimal adverse wetland impacts, from site-specific and cumulative impacts, are authorized in the CNMI. Managers will also have scientifically based information on a wetland's functions and values to use to justify the results of their alternatives analysis, public interest review, and required mitigation measures to counter political pressure to approve proposed wetland activities, and perhaps to garner political support for wetlands conservation. Currently, regulators only refer to CNMI wetland habitat functions to justify permitting decisions and required mitigation (Table 1). Manager's will garner increased political support for decisions that protect wetlands when these decisions are based on an analysis of the full suite of wetland functions and address the wetland's provision of valued services. If a regulator can cite information, such as identifying that an impact would damage property from reduced flood water storage, as a basis for denying a permit or requiring conservative mitigation measures, this will allow for more political support than the current basis for permitting decisions of protecting habitat of listed endangered birds.

Conclusion

The NWP program exists to allow the Corps to balance its workload, streamline the permit process, and focus on reviewing proposed projects with the greatest potential for significant adverse impacts. Nationwide, the Corps uses NWPs to authorize 80% of its regulated activities (U.S. Army Corps of Engineers. 1996b). The NWP program is ad-

equately flexible to allow states to condition and deny NWPs that could result in more than minimal adverse wetland impacts in their region. A review of the CNMI's wetland impacts supports the thesis that regulators do not know if the implementation of the NWP program in the CNMI is causing more than minimal adverse impacts to the performance of functions and provision of valued services on a site-specific or cumulative and landscape level.

All of the wetland impacts in the CNMI authorized under the NWP program have been on Saipan. The loss of wetland *quantity* on Saipan from authorized wetland impacts under the NWP program has been minimal, amounting to approximately 3.6 ha, or 1.5% of Saipan's total freshwater wetland area. However, managers lack information on the site-specific and cumulative losses of Saipan's wetland's *quality,* or performance of functions and provision of valued services, from the NWP program.

The CNMI conditioned and denied relevant NWPs to create a more stringent review process for projects that impact wetlands in an effort to better prevent significant adverse wetland impacts. Imposing the more restrictive environmental review will not create a significantly greater burden on land owners because this environmental review process is not significantly more time-consuming or expensive than if the CNMI had unconditionally approved these NWPs.

Nationwide, the NWP program could be causing more than minimal adverse impacts on wetland quantity and quality. The Corps does not know if the cumulative loss of wetland area, functions, and values is minimal because the Corps has incomplete data on adverse wetland impacts authorized under the NWP program (Peck, 1996). Because most regions of the United States lack standardized wetland assessment methods that are calibrated for local classes of wetlands (M. Davis, U.S. Army Corps of Engineers Waterways Experiment Station, personal communication, 1997; Gilman, 1997; Smith et al., 1995), and because even small, isolated, and temporary wetlands can possess valuable functions (Environmental Law Institute, 1993; Lewis, 1992; Pacific Estuarine Research Laboratory, 1990; Robinson, 1995), the Corps does not know if impacts to wetlands performance of functions authorized under the NWP program are minimal. Managers in these regions have no accurate scientific basis to know if a wetland impact will result in a more than minimal loss of the performance of functions and values on site or regionally, regardless of how small an area of wetland is degraded.

A national problem that prevents the NWP program from ensuring that it does not authorize more than minimal adverse impacts is that most regions lack standardized wetland assessment methods that can accurately measure changes in functional performance by local classes of wetlands and tools to assess potential losses of wetland values. This prevents the Corps and other wetland managers from accurately setting thresholds for wetland impacts to prevent more than minimal adverse impacts. Requiring the Corps to employ a more rigorous review process of proposed activities to be authorized under a NWP that will affect wetlands may aid in preventing significant adverse wetland impacts. However, the ultimate solution is to develop regional wetland assessment methods for all local classes of wetlands to provide information on the site-specific and cumulative losses of wetland functions and values.

In the CNMI and other regions of the United States that lack adequate wetland assessment methods, the loss of a small wetland or portion of a wetland could result in more than minimal losses of wetland quality, such as by adversely affecting an imperiled species. Violations of the Endangered Species Act are more likely to occur for projects authorized under NWPs that do not require notification than for projects that do require notification.

The federal wetland policy that calls for no net loss of the quantity or quality of wetlands (White House Office on Environmental Policy, 1993) needs to be implemented regionally: Filling 1 acre (0.405 ha) of a wetland under NWP 40 to construct a farm building in Montana may result in minimal loss of area, functions, and values, but may result in significant adverse impacts on Saipan. A wetland's level of performance of target functions, surrounding land uses, the quality and abundance of other wetlands in its watershed, and other value-laden factors determine how a region defines what is a minimal adverse impact for a specific wetland and watershed. Thus, if managers had the technical expertise and resources, the NWP program should account for the significance of a proposed wetland impact on a regional or islandwide basis to account for the local ecological and social context.

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